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MERED, HABTE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/663,378	ROGERS, STEVEN A.	
	Examiner	**Art Unit**	
	HABTE MERED	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to request for reconsideration filed on 4/21/2008.

2. Claims 1 and 3-37 are pending. Claims 1, 15, 19, 31, and 37 are the base independent claims.

3. The Final Office Action mailed on 1/2/2008 has been vacated. This Office Action replaces the Final Office Action mailed on 1/2/2008. Further this Office Action is made final because it is still addressing the *amended* claims in the amendment filed on 10/09/2007.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 3, 6, 8-14, 19-21, 23, 25-30, and 33-36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishioka (US 6, 999, 422 B2) in view of Klassen et al (US 6, 711, 137 B1).

Regarding **claim 1**, Ishioka'422 discloses a method of transmitting packets over an Internet Protocol (IP) ***(Ishioka'422's system is based on a label switched IP network as indicated in Column 8, 35-36 and illustrated in Figure 7)*** or Ethernet packet-switched network, comprising the step of:

(1) transmitting a plurality of test packets **(i.e. Ishioka'422 in Figure 2 shows transmission of test packets over a network)** over the network **(The network the test packets are transmitted on is shown in Figure 7)** during a plurality of different time slots ***(Ishioka'422 describes in Column 7, Lines 45-55 that there are 8 time slots in a 24 hour period and each time slot is a candidate time to send test packets as well as data packets. See also Column 8, Line 34)***, wherein each test packet is to be transmitted between endpoints **(i.e. Figure 2, receiving and sending end)** on the network ***(Figure 2, receiving end receives a plurality of test packets from sending end. See also Column 3, Lines 37-48 and Column 5, Lines 59-67)***;

(2) on the basis of step (1), evaluating which of the plurality of different time slots ***(i.e. 8 different time slots shown in Figure 6)*** corresponds to favorable network traffic ***(i.e. minimum relative delay)*** conditions ***(Ishioka'422 in Column 6, Lines 60-67 and Column 7, Lines 1-9 shows that Ishioka'422 determines the test packet statistics transit time and using unit 129 of Figure 3 determines which test packets in which time slots have faced less contention in the form of minimum relative delay.)***; and

(3) transmitting data packets over the network using one or more favorable time slots evaluated in step (2) ***(See Column 7, Lines 45-55 where Ishioka'422 picks route 3 as it has the highest number of best low level contention time slots suitable for business users traffic need)***.

Ishioka'422 fails to disclose transmitting a plurality of test packets over the network wherein each test packet has a priority level that is lower than a priority level assigned to data packets that are to be transmitted between endpoints on the network

and wherein the test packets are transmitted so as to emulate data packets that are to be transmitted between the endpoints on the network. Ishioka'422 also fails to disclose transmitting data packets over the network at a priority level higher than the test packets.

However, the above mentioned claimed limitations are well known in the art as evidenced by Klassen'137. In particular, Klassen'137 discloses transmitting a plurality of test packets over the network ***(Klassen'137 shows in Column 4, Lines 60-62 and Column 15, Lines 39-42 that test packets are sent over a live network that transmits various traffic including data, voice, and video. The actual network is shown in Figure 1)***

wherein each test packet has a priority level that is lower than a priority level assigned to data packets that are to be transmitted between endpoints ***(i.e. Figure 1, work stations 22 and 24)*** on the network ***(In Column 7, Lines 18-21 Klassen'137 shows that test packets have different priority levels. In Column 7, Lines 20-22 Klassen'137 shows that test transmission (d) has a low priority over data packets and other types of test packets)*** and

wherein the test packets are transmitted so as to emulate data packets ***(See Column 5, Lines 5-8, Column 6, Lines 41-55, and Column 7, Lines 1-17 where Klassen'137 indicates the test packets emulate video/voice/data/web/file data packets)*** that are to be transmitted between the endpoints on the network ***(Figure 1's workstation 22 and target station 24 are the end points)***

Klassen'137 also discloses transmitting data packets over the network at a priority level higher ***(In Column 16, Lines 17-25 it is detailed real time data has the highest priority and is certainly higher in priority to the low priority test packet corresponding to batch file transfer as indicated in Column 7, Lines 20-22, i.e. test (d))*** than the test packets.

(Klassen'137 shows in Column 4, Lines 51-55 that the test packets have differing network priorities as further shown in Column 7, Lines 1-17. Data packets also have differing network priorities. Note also that Klassen'137 has already established test packets are transmitted in a live network where data is continuously exchanged as shown in Column 4, Lines 60-64 and a lower network priority set for test packets effectively means that the test packets have a lower priority against data packets as well as other types of test packets and vice versa.)

In view of the above, having the method of Ishioka'422 and then given the well established teaching of Klassen'137, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ishioka'422 as taught by Klassen'137, since Klassen'137 clearly states in Column 2, Lines 55-60 that such a modification to Ishioka'422's method results in a better capability for testing in a network that prioritizes traffic. Also since it is well known fact that sending data packets at a low priority minimizes impact on high priority data traffic then it would have also been obvious to one having ordinary skill in the art at the time of the invention to send test at a lower priority so as not to impact existing traffic.

Regarding **claim 3**, the combination of Ishioka'422 and Klassen'137 discloses a method wherein step (2) comprises the step of evaluating packet latencies associated with the test packets **(See Ishioka'422 calculating test packet propagation delay See Column 3, Line 9 and equation 1 of column 4. Also Klassen'137 in Column 16, Lines 54-67 discusses test packet latency evaluation. See also Klassen'137 Column 17, Lines 35-42 -step 5 calculates network latency and in general also see Klassen'137 Column 5, Lines 9-40)**.

Regarding **claim 6**, Ishioka'422 discloses a method wherein step (2) comprises the step of a network endpoint **(i.e. Figure 2, sending side does such calculation in as shown in Column 3, Lines 5-25 and 35-48)** transmitting node performing an evaluation of packet statistics associated with the test packets ***(Ishioka'422 in Column 6, Lines 60-67 and Column 7, Lines 1-9 shows that Ishioka'422 determines the test packet statistics transit time and using unit 129 of Figure 3 determines which test packets in which time slots have faced less contention in the form of minimum relative delay)*** transmitted over the plurality of different time slots **(See also Figure 6)**.

Regarding **claim 8**, the combination of Ishioka'422 and Klassen'137 discloses a method wherein the test packets and the data packets comprise Internet Protocol (IP) packets transmitted over a packet-switched network. ***(Since in Klassen'137 system the test packets are IP ping packets the communication network and stations 22 and 24 are served and connected by IP network as further illustrated in Klassen'137 in Column 1, Lines 52-54; Column 7, Lines 23-25; Column 8, Lines 34-35; Column 9, Line 22, and Column 11, Line 50. Ishioka'422 also discloses the***

network is IP in Column 8, Lines 35-36 and in Column 6, Lines 38-40 and in Figure 4)

Regarding **claim 9**, Ishioka'422 discloses a method, wherein the IP packets are scheduled for transmission within time slots within a frame that is synchronized to a clock ***(Column 6, Lines 60-67and Column 7, Lines 45-55 and in Figure 6 Ishioka'422 shows packets can be scheduled for transmission within a time slot within a frame synchronized to a transmitter clock. Note this limitation does not require synchronous transmission implying synchronicity of receiver and transmitter clocks.)***.

Regarding **claim 10**, the combination of Ishioka'422 and Klassen'137 discloses a method, wherein the test packets are transmitted at a priority level that is lower ***(In Column 7, Lines 20-22 Klassen'137 shows that test transmission (d) has a low priority over data packets and other types of test packets)*** than the data packets in step (3) ***(In Column 16, Lines 17-25 it is detailed real time data has the highest priority)***, but higher than other data packets containing other data transmitted on the network ***(See Klassen'137 Column 5, Lines 1-8 and Column 7, Lines 8-27 - at list of different priorities is taught and test packets higher than or lower than data packets are used and sent simultaneously with the data as suggested in Klassen'137 Column 2, Lines 57-60 and Column 4, Lines 55-65 and the actual implementation of the test arrangement discussed in Columns 5, Lines1-8 and Column 7, Lines 18-27)*** .

Regarding **claim 11**, the combination of Ishioka'422 and Klassen'137 discloses a method, wherein the data packets comprise voice data **(Ishioka'422 Column 8, Line 26 and Klassen'137 Column 5, Line 6)**.

Regarding **claim 12**, the combination of Ishioka'422 and Klassen'137 discloses a method**,** further comprising the step of repeating steps (1) through (3) for each side of a two-way connection between two endpoints in the network ***(See Ishioka'422 Figure 2 and Klassen'137 Figures 1-6 where each end point can either be the sender or transmitter or receiver or target)***.

Regarding **claim 13**, the combination of Ishioka'422 and Klassen'137 discloses a method wherein the network is a packet-switched network **(i.e. both Ishioka'422 and Klassen'137 teach IP packet switched network)** comprising packet switches that maintain packet queues ***(In particular Klassen'137 teaches a packet switching system as described in Column 1, Lines 52-54; Column 7, Lines 23-25; Column 8, Lines 34-35; Column 9, Line 22, and Column 11, Lines 50-54. The queuing aspect is taught every where including in Column 3, Lines 1-10; Column 5, Lines 9-25; Column 9, Lines 47-60, and Column 12, Lines 20-35, and more importantly in Column 16, 30-57 where it is suggested existence of queues in the network that contains the switches based on service and priority)***.

Regarding **claim 14**, the combination of Ishioka'422 and Klassen'137 discloses a method, wherein each packet switch comprises at least two packet queues, a higher-priority queue for transmitting the data packets of step (3) and a lower-priority queue for transmitting the test packets of step (1) ***(Since clearly Klassen'137 distinguishes***

packets on service and priority as indicated in Column 16, Lines 15-67 it has to store or buffer the different services and priorities separately. For instance video is buffered separately from a low priority data batch file forcing each entity to have a high priority queue/buffer to store video and a low priority queue/buffer for low level data for the purposes of efficiency and service differentiations. See priorities of test packet in Column 5, Lines 1-8 and Column 7, Lines 18-27 and all about queuing that effectively teaches this limitation in Column 3, Lines 1-10, Column 5, Lines 9-25, Column 9, Lines 47-60, Column 12, Lines 20-35, and more importantly in Column 16, Lines 30-57).

Regarding **claim 19**, Ishioka'422 discloses an apparatus **(Figure 1, element 1 which is a communication apparatus)** having a network interface **(Figure 1, element 20 is a transmitter interfacing with network. See also in Figure 3 element node N1 has links to interface to the router)** and programmed with computer-executable instructions that, when executed, perform the step of:

(1) transmitting a plurality of test packets ***(i.e. Ishioka'422 in Figure 2 shows transmission of test packets over a network)*** over a network ***(The network the test packets are transmitted on is shown in Figure 7)*** to which the apparatus is connected to ***(Apparatus shown in Figure 1 and 2 as the sending side is connected to a network of the like of Figure 7)*** during a plurality of different time slots ***(Ishioka'422 describes in Column 7, Lines 45-55 that there are 8 time slots in a 24 hour period and each time slot is a candidate time to send test packets as well as data packets. See also Column 8, Line 34)***, wherein each test packet is to be

transmitted between endpoints ***(i.e. Figure 2, receiving and sending end)*** of the network ***(Figure 2, receiving end receives a plurality of test packets from sending end. See also Column 3, Lines 37-48 and Column 5, Lines 59-67)***;

(2) on the basis of step (1), evaluating which of the plurality of different time slots ***(i.e. 8 different time slots shown in Figure 6)*** corresponds to favorable network traffic ***(i.e. minimum relative delay)*** conditions ***(Ishioka'422 in Column 6, Lines 60-67 and Column 7, Lines 1-9 shows that Ishioka'422 determines the test packet statistics transit time and using unit 129 of Figure 3 determines which test packets in which time slots have faced less contention in the form of minimum relative delay.)***; and

(3) transmitting data packets over the network using one or more favorable time slots evaluated in step (2) ***(See Column 7, Lines 45-55 where Ishioka'422 picks route 3 as it has the highest number of best low level contention time slots suitable for business users traffic need)***.

Ishioka'422 fails to disclose transmitting a plurality of test packets at a first priority level over a network wherein the test packets are transmitted so as to emulate data packets that are to be transmitted between the endpoints on the network. Ishioka'422 also fails to disclose transmitting data packets over the network at a second priority level wherein the second priority level is higher than the first priority level.

However, the above mentioned claimed limitations are well known in the art as evidenced by Klassen'137. In particular, Klassen'137 discloses transmitting a plurality of test packets at a first priority level ***(i.e. test transmission (d) has a first priority level which is a low priority as indicated in Column 7, Lines 21-22)*** over a network

(In Column 4, Lines 51-55 and Column 7, Lines 18-21 Klassen'137 shows that test packets have different priority levels. In Column 7, Lines 20-22 Klassen'137 shows that test transmission (d) has a low priority over data packets and other types of test packets.)

wherein the test packets are transmitted at a data rate so as to emulate data packets that are to be transmitted between the endpoints on the network ***(Klassen'137 in Column 6, Lines 29-40 shows data rate being effectively determined by determining the size of the window or test message/packet and since Klassen'137 discloses in Column 5, Lines 5-8, Column 6, Lines 41-55, and Column 7, Lines 1-17 that the test packets emulate video/voice/data/web/file data packets the message size and corresponding data rate attempts to match subsequent data transmission. Klassen'137 varies data rate for different services including current rate by using predictive rate as shown in Column 7, Lines 53-55)***

Klassen'137 also discloses transmitting data packets over the network at a second priority level ***(real time data has the highest priority as detailed in Column 16, Lines 17-25)*** wherein the second priority level is higher than the first priority ***(i.e. test transmission (d) has a first priority level which is a low priority as indicated in Column 7, Lines 21-22)*** level ***(Klassen'137 shows in Column 4, Lines 51-55 that the test packets have differing network priorities as further shown in Column 7, Lines 1-17. Data packets also have differing network priorities. For instance for real time data the highest priority is used and is transmitted using the optimum window that corresponds to the best ping time as detailed in Column 16, Lines***

17-25 and is certainly higher in priority to the low priority test packet corresponding to batch file transfer as indicated in Column 7, Lines 20-22, i.e. test (d)).

In view of the above, having the apparatus of Ishioka'422 and then given the well established teaching of Klassen'137, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Ishioka'422 as taught by Klassen'137, since Klassen'137 clearly states in Column 2, Lines 55-60 that such a modification to Ishioka'422's apparatus results in a better capability for testing in a network that prioritizes traffic. Also since it is well known fact that sending data packets at a low priority minimizes impact on high priority data traffic then it would have also been obvious to one having ordinary skill in the art at the time of the invention to send test at a lower priority so as not to impact existing traffic.

Regarding **claim 20**, the combination of Ishioka'422 and Klassen'137 discloses an apparatus, wherein the computer executable instructions further perform the step of evaluating packet latencies of the plurality of: test packets with a second apparatus **(Ishioka'422 shows the receiving end of Figure 2 as the second apparatus and Klassen'137 the target station 24 as the 2nd apparatus)** connected to the network ***(See Ishioka'422 calculating test packet propagation delay See Column 3, Line 9 and equation 1 of column 4. Also Klassen'137 in Column 16, Lines 54-67 discusses test packet latency evaluation. See also Klassen'137 Column 17, Lines 35-42 -step 5 calculates network latency and in general also see Klassen'137 Column 5, Lines 9-40).***

Regarding **claim 21**, the combination of Ishioka'422 and Klassen'137 discloses a method, wherein step(2) comprises the step of transmitting the test packets at a data rate ***(Klassen'137 varies data rate by varying the window or message size for different services in Column 7, Lines 6 shown as item (c))*** that exceeds an expected data rate ***(Klassen'137 varies data rate for different services including current rate by using predictive rate as illustrated in Column 7, Lines 53-55)*** for packets that are to be transmitted between two network endpoints ***(work station 22 and target station 24 in Klassen'137 Figure 1)*** on the network ***(network shown in Klassen'137 Figure 1) (Please note that based on the support provided by Applicant for data rate in paragraph 29 of the unpublished specification it is suggested in paragraph 29 changing data rate corresponds to changing test packet size from 80 bytes to 160 bytes and is identical to Klassen'137's teachings. See also Klassen'137's Column 2, Lines 9-15; Column 3, Lines 20-30; Column 7, Lines 4-7; Column 10, Lines 17-40 and Figure 5).***

Regarding **claim 23,** the combination of Ishioka'422 and Klassen'137 discloses an apparatus ***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus)***, wherein step (2) comprises the step of evaluating packet statistics associated with the test packets ***(See Ishioka'422 calculating test packet propagation delay See Column 3, Line 9 and equation 1 of column 4. Also Klassen'137 in Column 16, Lines 54-67 discusses test packet latency evaluation. See also Klassen'137 Column 17, Lines 35-42 -step 5***

calculates network latency and in general also see Klassen'137 Column 5, Lines 9-40).

Regarding **claim 25**, the combination of Ishioka'422 and Klassen'137 discloses an apparatus ***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus)*** wherein the packet statistics comprise packet latencies ***(See Ishioka'422 calculating test packet propagation delay, i.e. packet latency, See Column 3, Line 9 and equation 1 of column 4. Also Klassen'137 in Column 16, Lines 54-67 discusses test packet latency evaluation. See also Klassen'137 Column 17, Lines 35-42 -step 5 calculates network latency and in general also see Klassen'137 Column 5, Lines 9-40)***.

Regarding **claim 26**, the combination of Ishioka'422 and Klassen'137 discloses an apparatus***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus)***, wherein the test packets and the data packets comprise Internet Protocol (IP) packets transmitted over a packet-switched network ***(Since in Klassen'137 system the test packets are IP ping packets the communication network and stations 22 and 24 are served and connected by IP network as further illustrated in Klassen'137 in Column 1, Lines 52-54; Column 7, Lines 23-25; Column 8, Lines 34-35; Column 9, Line 22, and Column 11, Line 50. Ishioka'422 also discloses the network is IP in Column 8, Lines 35-36 and in Column 6, Lines 38-40 and in Figure 4)***

Regarding **claim 27**, Ishioka'422 discloses an apparatus ***(i.e. Ishioka'422 Figure 2, sending element can be the apparatus)***, wherein the IP packets are scheduled for

transmission within time slots within a frame that is synchronized to a clock. ***(Column 6, Lines 60-67and Column 7, Lines 45-55 and in Figure 6 Ishioka'422 shows packets can be scheduled for transmission within a time slot within a frame synchronized to a transmitter clock. Note this limitation does not require synchronous transmission implying synchronicity of receiver and transmitter clocks.)***.

Regarding **claim 28**, Ishioka'422 discloses an apparatus ***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus)***, wherein the test packets are transmitted at a priority level that is lower ***(In Column 7, Lines 20-22 Klassen'137 shows that test transmission (d) has a low priority over data packets and other types of test packets)*** than the data packets in step (3) ***(In Column 16, Lines 17-25 it is detailed real time data has the highest priority)***, but higher than other data packets containing other data transmitted on the network ***(See Klassen'137 Column 5, Lines 1-8 and Column 7, Lines 8-27 - at list of different priorities is taught and test packets higher than or lower than data packets are used and sent simultaneously with the data as suggested in Klassen'137 Column 2, Lines 57-60 and Column 4, Lines 55-65 and the actual implementation of the test arrangement discussed in Columns 5, Lines1-8 and Column 7, Lines 18-27)*** .

Regarding **claim 29**, the combination of Ishioka'422 and Klassen'137 discloses an apparatus***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus)***, wherein the data packets comprise voice data **(Ishioka'422 Column 8, Line 26 and Klassen'137 Column 5, Line 6)**.

Regarding **claim 30**, the combination of Ishioka'422 and Klassen'137 discloses an apparatus ***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus)***, wherein the network is a packet-switched network **(i.e. both Ishioka'422 and Klassen'137 teach IP packet switched network)** comprising packet switches that maintain packet queues ***(In particular Klassen'137 teaches a packet switching system as described in Column 1, Lines 52-54; Column 7, Lines 23-25; Column 8, Lines 34-35; Column 9, Line 22, and Column 11, Lines 50-54. The queuing aspect is taught every where including in Column 3, Lines 1-10; Column 5, Lines 9-25; Column 9, Lines 47-60, and Column 12, Lines 20-35, and more importantly in Column 16, 30-57 where it is suggested existence of queues in the network that contains the switches based on service and priority)***.

Regarding **claim 33**, the combination of Ishioka'422 and Klassen'137 discloses a method ***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus conducting the method)*** wherein the data packets comprise video data ***(See Ishioka'422 Column 8, Line 27 and Klassen'137 Column 5, Line 6)***.

Regarding **claim 34**, Ishioka'422 discloses a method ***(i.e. Ishioka'422 Figure 3, Node N1conducts the method)***, wherein the data packets comprise time-division multiplex (TDM) data converted into IP packets ***(ADM 109 of Figure 3 Node N1 time multiplexes data and transmits using IP protocol as illustrated in Column 6, Lines 45-47 and Column 8, Lines 35-37)***.

Regarding **claim 35**, the combination of Ishioka'422 and Klassen'137 discloses an apparatus ***(i.e. Ishioka'422 Figure 2, sending element or Klassen'137 Figure 1 work station 22 can be the apparatus)*** wherein the data packets comprise video data **(See Ishioka'422 Column 8, Line 27 and Klassen'137 Column 5, Line 6)**.

Regarding **claim 36**, Ishioka'422 discloses an apparatus ***(i.e. Ishioka'422 Figure 3, Node N1)***, wherein the data packets comprise time-division multiplex (TDM) data converted into IP packets ***(ADM 109 of Figure 3 Node N1 time multiplexes data and transmits using IP protocol as illustrated in Column 6, Lines 45-47 and Column 8, Lines 35-37)***.

5. **Claims 15-16 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishioka'422 in view of Doerken et al (US 2004/0024550 A1).

Regarding **claim 15**, Ishioka'422 discloses in an Internet Protocol (IP) **(Figure 7 network is an IP network)** or Ethernet network comprising a plurality of packet switches **(Figure 7's routers are layer 3 switches)**, a method of transmitting data packets ***(Ishioka'422's system is based on a label switched IP network as indicated in Column 8, 35-36 and illustrated in Figure 7)***, comprising the steps of:

(1) establishing a time reference frame comprising a plurality of time slots ***(Ishioka'422 describes in Column 7, Lines 45-55 that there are 8 time slots in a 24 hour period and each time slot is a candidate time to send test packets as well as data packets)*** during which packets are to be transmitted across the network ***(i.e. over the label switched IP network shown in Figure 7 and described in Column 8, Lines***

34-36) between two network endpoints ***(i.e. Sending and Receiving ends of Figure 2 travel through various routes over the IP network shown in Figure 7)***;

(2) from a first network endpoint **(i.e. sending end of Figure 2)**, empirically determining which of the plurality of time slots is associated with a reduced level of packet contention ***(Ishioka'422 in Column 6, Lines 60-67 and Column 7, Lines 1-9 shows from the empirical calculation of relative transport time of test packets selection of low contention time slots are made. Low contention time slots are the ones that have the minimum relative delay or transport time as shown in Figure 6)*** with respect to an intended second **(i.e. receiving end of Figure 2)** network endpoint ***(See also Column 3, Lines 37-48 and Column 5, Lines 59-67*** **for the details of the empirical determination to select the minimum contention time slot)**; and

(3) transmitting a plurality of data packets ***(all routes shown in Figure 6 are for data packet transmission)*** from the first network endpoint **(i.e. Figure 2's sending end)** to the second network endpoint **(i.e. Figure 2's receiving end)** during one or more time slots empirically determined ***(In Column 3, Lines 37-48 and Column 5, Lines 59-67 shows empirical calculations)*** to be associated with the reduced level of packet contention in step (2) ***(See Column 7, Lines 45-55 where Ishioka'422 picks route 3 as it has the highest number of best low level contention time slots suitable for business users traffic need)***.

Ishioka'422 also fails to expressly disclose a method of synchronously transmitting packets from the first network end point to a second network endpoint.

However Ishioka'422 in fact teaches sending test packets between endpoints where the network is an IP network comprising a plurality of network switches and compensating for the lack of synchronism between the sending and receiving ends' clocks when calculating the transport time of the test packets. Ishioka'422 uses a reference test packet to establish a reference transmission and a reception time to determine relative test packet transport time providing means for evaluating the test results while compensating for the lack of synchronism between the end points as detailed in Column 5, Lines 10-33.

However, the above mentioned claimed limitations are well known in the art as evidenced by Doerken'550. In particular, Doerken'550 discloses a method of synchronously ***(i.e. receiver and transmitter clocks are synched via GPS using satellite 30 of Figure 1)*** transmitting packets between a first network end point **(i.e. Figure 1, element 26)** to the second network endpoint **(i.e. Figure 1, element 28)** ***(Note that Each end unit like elements 26 and 28 use GPS 30 to synchronize clocks and the network of Figure 1 is able to send packets as shown in paragraphs 47 and 48.***

Note also that Ishioka'422 determines relative test packet transport time as opposed to absolute transport time in order to determine the best time slot that corresponds to the minimum relative delay as opposed to the minimum absolute delay because the receiving and sending ends are not synchronized. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Ishioka'422's method such that it determines

absolute test packet transport time in order to determine the best time slot that corresponds to the minimum absolute delay by synchronizing the receiving and sending ends using Doerken'550 synchronization scheme).

In view of the above, having the method of Ishioka'422 and then given the well established teaching of Doerken'550, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ishioka'422 as taught by Doerken'550, since Doerken’550 clearly states in paragraph 58 that the modification to Ishioka'422’s method results in end users having synchronized clocks and end users will be able to take very accurate packet delay measurements.

Regarding **claim 16**, Ishioka'422 discloses a method wherein step (2) comprises the step of transmitting a plurality of test packets **(i.e. Ishioka'422 in Figure 2 shows transmission of test packets over a network)** during a plurality of different time slots***(Ishioka'422 describes in Column 7, Lines 45-55 that there are 8 time slots in a 24 hour period and each time slot is a candidate time to send test packets as well as data packets. See also Column 8, Line 34 and Figure 6)*** from the first network endpoint transmitting node ***(i.e. Figure 2’s sending end)*** to the second network endpoint ***(i.e. Figure 2’s sending end)***.

Regarding **claim 22**, the combination of Ishioka'422, and Doerken'550 disclose a method wherein the reduced level of packet contention corresponds to zero contention ***(Ishioka'422 shows the zero contention as zero delay in Figure 6 and for different routes have low level packet contention time slots that correspond to zero delay.)***.

6. **Claims 17 and 18** rejected under 35 U.S.C. 103(a) as being unpatentable over Ishioka'422 in view of Doerken'550 as applied to claim16 above, and further in view of Klassen'137.

Regarding **claim 17**, the combination of Ishioka'422 and Doerken'550 fail to disclose a method, wherein step (2) comprises the step of transmitting the test packets using a packet priority level lower than a packet priority level used to transmit the plurality of data packets in step (3).

However, the above mentioned claimed limitations are well known in the art as evidenced by Klassen'137. In particular, Klassen'137 discloses a method, wherein step (2) comprises the step of transmitting the test packets using a packet priority level lower ***(In Column 7, Lines 20-22 Klassen'137 shows that test transmission (d) has a low priority over data packets and other types of test packets)*** than a packet priority level used to transmit the plurality of data packets in step (3) ***(In Column 16, Lines 17-25 it is detailed real time data has the highest priority) (See Klassen'137 Column 5, Lines 1-8 and Column 7, Lines 8-27 - at list of different priorities is taught and test packets higher than or lower than data packets are used and sent simultaneously with the data as suggested in Klassen'137 Column 2, Lines 57-60 and Column 4, Lines 55-65 and the actual implementation of the test arrangement discussed in Columns 5, Lines1-8 and Column 7, Lines 18-27)***.

In view of the above, having the method based on the combination of Ishioka'422 and Doerken'550 and then given the well established teaching of Klassen'137, it would have been obvious to one having ordinary skill in the art at the time of the invention was

made to modify the based on the combination of Ishioka'422 and Doerken'550 as taught by Klassen'137, since Klassen'137 clearly states in Column 2, Lines 55-60 that such a modification to Ishioka'422's method results in a better capability for testing in a network that prioritizes traffic. Also since it is well known fact that sending data packets at a low priority minimizes impact on high priority data traffic then it would have also been obvious to one having ordinary skill in the art at the time of the invention to send test at a lower priority so as not to impact existing traffic.

Regarding **claim 18**, the combination of Ishioka'422, Klassen'137 and Doerken'550, discloses a method wherein step (2) comprises the step of transmitting test packets at a data rate ***(Klassen'137 varies data rate by varying the window or message size for different services in Column 7, Line 6 shown as item (c))*** sufficient to support a desired bandwidth in step (3) ***(Klassen'137 varies data rate for different services to support a desired bandwidth by using predictive rate as illustrated in Column 7, Lines 53-55)*** .

7. **Claims 31-32 and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishioka'422 in view of Klassen'137 and Doerken et al (US 2004/0024550 A1).

Regarding **claim 31**, Ishioka'422 discloses a system comprising at least three network endpoints **(The sending and receiving ends in Figure 2 are connected to a network like Figure 7 in a manner shown in Figure 3 and surely there are more than two end points in such an arrangement as suggested in Column 8, Lines 28-**

40) that contend for resources in a shared packet switch ***(All of the router packet switches shown in Figure 3 and 7 are shared by endpoints of the network)***, each endpoint ***(The embodiment for the endpoint is shown in Figure 3 and 7 and contain many processors to assist in determination of best timeslot and route for test packets)*** comprising a processor programmed with computer executable instructions ***(See different processor units in Figure 3)*** that, when executed, performs steps including:

(1) transmitting a plurality of test packets **(i.e. Ishioka'422 in Figure 2 shows transmission of test packets over a network)** over the network **(The network the test packets are transmitted on is shown in Figure 7)** during a plurality of different time slots ***(Ishioka'422 describes in Column 7, Lines 45-55 that there are 8 time slots in a 24 hour period and each time slot is a candidate time to send test packets as well as data packets. See also Column 8, Line 34)***, wherein each test packet is to be transmitted between endpoints **(i.e. Figure 2, receiving and sending end)** on the network ***(Figure 2, receiving end receives a plurality of test packets from sending end. See also Column 3, Lines 37-48 and Column 5, Lines 59-67)***;

(2) on the basis of step (1), evaluating which of the plurality of different time slots ***(i.e. 8 different time slots shown in Figure 6)*** corresponds to favorable network traffic ***(i.e. minimum relative delay)*** conditions ***(Ishioka'422 in Column 6, Lines 60-67 and Column 7, Lines 1-9 shows that Ishioka'422 determines the test packet statistics transit time and using unit 129 of Figure 3 determines which test packets in which time slots have faced less contention in the form of minimum relative delay.)***; and

(3) transmitting data packets over the network using one or more favorable time slots evaluated in step (2) ***(See Column 7, Lines 45-55 where Ishioka'422 picks route 3 as it has the highest number of best low level contention time slots suitable for business users traffic need)***.

Ishioka'422 fails to disclose transmitting a plurality of test packets over the network wherein each test packet has a priority level that is lower than a priority level assigned to data packets that are to be transmitted between endpoints on the network and wherein the test packets are transmitted so as to emulate data packets that are to be transmitted between the endpoints on the network. Ishioka'422 also fails to disclose transmitting data packets over the network at a priority level higher than the test packets.

However, the above mentioned claimed limitations are well known in the art as evidenced by Klassen'137 In particular, Klassen'137 discloses transmitting a plurality of test packets over the network **(*Klassen'137 shows in Column 4, Lines 60-62 and Column 15, Lines 39-42 that test packets are sent over a live network that transmits various traffic including data, voice, and video. The actual network is shown in Figure 1*)**

wherein each test packet has a priority level that is lower than a priority level assigned to data packets that are to be transmitted between endpoints ***(i.e. Figure 1, work stations 22 and 24)*** on the network ***(In Column 7, Lines 18-21 Klassen'137 shows that test packets have different priority levels. In Column 7, Lines 20-22***

Klassen'137 shows that test transmission (d) has a low priority over data packets and other types of test packets) and

wherein the test packets are transmitted so as to emulate data packets ***(See Column 5, Lines 5-8, Column 6, Lines 41-55, and Column 7, Lines 1-17 where Klassen'137 indicates the test packets emulate video/voice/data/web/file data packets)*** that are to be transmitted between the endpoints on the network ***(Figure 1's workstation 22 and target station 24 are the end points. Klassen'137 varies data rate for different services including current rate by using predictive rate in Column 7, Lines 53-55)***

Klassen'137 also discloses transmitting data packets over the network at a priority level higher ***(In Column 16, Lines 17-25 it is detailed real time data has the highest priority and is certainly higher in priority to the low priority test packet corresponding to batch file transfer as indicated in Column 7, Lines 20-22, i.e. test (d))*** than the test packets.

(Klassen'137 shows in Column 4, Lines 51-55 that the test packets have differing network priorities as further shown in Column 7, Lines 1-17. Data packets also have differing network priorities. Note also that Klassen'137 has already established test packets are transmitted in a live network where data is continuously exchanged as shown in Column 4, Lines 60-64 and a lower network priority set for test packets effectively means that the test packets have a lower priority against data packets as well as other types of test packets and vice versa.)

In view of the above, having the system of Ishioka'422 and then given the well established teaching of Klassen'137, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Ishioka'422 as taught by Klassen'137, since Klassen'137 clearly states in Column 2, Lines 55-60 that such a modification to Ishioka'422's system results in a better capability for testing in a network that prioritizes traffic. Also since it is well known fact that sending data packets at a low priority minimizes impact on high priority data traffic then it would have also been obvious to one having ordinary skill in the art at the time of the invention to send test at a lower priority so as not to impact existing traffic.

Ishioka'422 also fails to expressly disclose a method of synchronously transmitting packets over the network.

However Ishioka'422 in fact teaches sending test packets between endpoints where the network is an IP network comprising a plurality of network switches and *compensating for the lack of synchronism* between the sending and receiving ends' clocks when calculating the transport time of the test packets. Ishioka'422 uses a reference test packet to establish a reference transmission and a reception time to determine relative test packet transport time providing means for evaluating the test results while compensating for the lack of synchronism between the end points as detailed in Column 5, Lines 10-33.

However, the above mentioned claimed limitations are well known in the art as evidenced by Doerken'550. In particular, Doerken'550 discloses a method of synchronously ***(i.e. receiver and transmitter clocks are synched via GPS using***

satellite 30 of Figure 1) transmitting packets over the network **(i.e. IP network shown in Figure 1 and illustrated in paragraphs 36 and 48)** between a first network end point **(i.e. Figure 1, element 26)** to the second network endpoint **(i.e. Figure 1, element 28)** ***(Note that Each end unit like elements 26 and 28 use GPS 30 to synchronize clocks and the network of Figure 1 is able to send packets as shown in paragraphs 47 and 48.***

Note also that Ishioka'422 determines relative test packet transport time as opposed to absolute transport time in order to determine the best time slot that corresponds to the minimum relative delay as opposed to the minimum absolute delay because the receiving and sending ends are not synchronized. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Ishioka'422's method such that it determines absolute test packet transport time in order to determine the best time slot that corresponds to the minimum absolute delay by synchronizing the receiving and sending ends using Doerken'550 synchronization scheme).

In view of the above, having the method of Ishioka'422 and then given the well established teaching of Doerken'550, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ishioka'422 as taught by Doerken'550, since Doerken'550 clearly states in paragraph 58 that the modification to Ishioka'422's method results in end users having synchronized clocks and end users will be able to take very accurate packet delay measurements.

Regarding **claim 32**, Ishioka'422 discloses a system **(See Figures 1-3)** wherein the processor **(i.e. any of the processors for calculating delay in Figures 1-3)** is further programmed to perform steps including: evaluating packet statistics corresponding to the test packets transmitted as part of step (2) ***(See Ishioka'422 calculating test packet propagation delay See Column 3, Line 9 and equation 1 of column 4.)****.*

Regarding **claim 37**, Ishioka'422 discloses a method of transmitting packets over an Internet Protocol (IP) network comprising a plurality of network switches ***(Ishioka'422's system is based on a label switched IP network as indicated in Column 8, 35-36 and illustrated in Figure 7)***, comprising:

(1) establishing a time reference frame comprising a plurality of time slots corresponding to candidate times ***(Ishioka'422 describes in Column 7, Lines 45-55 that there are 8 time slots in a 24 hour period and each time slot is a candidate time to send test packets as well as data packets)*** during which packets may be transmitted between network endpoints ***(i.e. Sending and Receiving ends of Figure 2)*** on the network ***(Ishioka'422 shows in Figure 6 a time reference of 24 hours with 8 time slots of length 3 hours and in each time slot packets are exchanged between end points of a network such as shown in Figure 7 and the endpoints are shown in Figure 2)***;

(2) transmitting over a plurality of the time slots a plurality of test packets from a first endpoint ***(Figure 2, sending end sends test packets P0 and P1)*** on the IP network to a second endpoint on the IP network ***(Figure 2, receiving end receives a***

plurality of test packets. See also Column 3, Lines 37-48 and Column 5, Lines 59-67),

(3) evaluating, at one of the first ***(i.e. Sending End of Figure 2)*** and second ***(i.e. Receiving End of Figure 2)*** endpoints, packet statistics for the test packets, wherein the packet statistics are indicative of contention conditions in one or more of the plurality of network switches ***(Ishioka'422 in Column 6, Lines 60-67 and Column 7, Lines 1-9 shows that using transport time determination unit 128 of Figure 3 it determines the test packet statistics transit time and using unit 129 of Figure 3 determines which test packet has faced contention which is based on how long the relative transport time is. The contention conditions are due to delays incurred when the test packet passes through the Layer 3 router switches and multi-protocol label switches shown in Figure 7. The longer the relative transport time, i.e. the relative delay time showed in the vertical axis of figure 7, the higher the contention condition is.)***,

(4) identifying one or more time slots that correspond to a low level of contention conditions ***(Ishioka'422 indicates the output of result notification unit 129 is shown in Figure 6 and in Figure 6 different slots corresponding to low level of contention are indicated by minimum relative network delay. For instance route 3 has 4 time slots corresponding to low level of contention);*** and

(5) transmitting based on the time reference frame ***(the time reference frame of 24 hours is shown in Figure 6)*** a plurality of data packets comprising one or more of voice data, video data, and TDM-over-IP data ***(See Column 8, Lines 25-27)*** during the

one or more of the time slots identified in step (4) that correspond to the low level of contention conditions ***(See Column 7, Lines 45-55 where Ishioka'422 picks route 3 as it has the highest number of best low level contention time slots suitable for business users traffic need)*** in the one or more network switches ***(The test packets travel through a network containing routers and MPLS based switches as shown in Figure 7)***.

Ishioka'422 fails to disclose a method wherein the plurality of test packets are transmitted at a first priority level and are transmitted at a data rate corresponding to an expected rate to be experienced during a subsequent communication between the first and second endpoints on the IP network, and wherein the data packets are transmitted at a priority level higher than the first priority level of the test packets.

However, the above mentioned claimed limitations are well known in the art as evidenced by Klassen'137. In particular, Klassen'137 discloses a method wherein the plurality of test packets are transmitted at a first priority level ***(In Column 4, Lines 51-55 and Column 7, Lines 18-21 Klassen'137 shows that test packets have different priority levels. In Column 7, Lines 20-22 Klassen'137 shows that test transmission (d) has a low priority over data packets and other types of test packets.)***

and are transmitted at a data rate corresponding to an expected rate to be experienced during a subsequent communication between the first and second endpoints on the IP network ***(Klassen'137 in Column 6, Lines 29-40 shows data rate being effectively determined by determining the size of the window or test***

message/packet and since Klassen'137 discloses in Column 5, Lines 5-8, Column 6, Lines 41-55, and Column 7, Lines 1-17 that the test packets emulate video/voice/data/web/file data packets the message size and corresponding data rate attempts to match subsequent data transmission. Klassen'137 varies data rate for different services including current rate by using predictive rate in Column 7, Lines 53-55),

and wherein the data packets are transmitted at a priority level higher than the first priority level of the test packets ***(Klassen'137 shows in Column 4, Lines 51-55 that the test packets have differing network priorities as further shown in Column 7, Lines 1-17. Data packets also have differing network priorities. For instance for real time data the highest priority is used and is transmitted using the optimum window that corresponds to the best ping time as detailed in Column 16, Lines 17-25 and is certainly higher in priority to the low priority test packet corresponding to batch file transfer as indicated in Column 7, Lines 20-22, i.e. test (d)).***

In view of the above, having the method of Ishioka'422 and then given the well established teaching of Klassen'137, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ishioka'422 as taught by Klassen'137, since Klassen'137 clearly states in Column 2, Lines 55-60 that such a modification to Ishioka'422's method results in a better capability for testing in a network that prioritizes traffic. Also since it is well known fact that sending data packets at a low priority minimizes impact on high priority data traffic then it would have

also been obvious to one having ordinary skill in the art at the time of the invention to send test at a lower priority so as not to impact existing traffic.

Ishioka'422 also fails to expressly disclose a method of synchronously transmitting packets between network end points where the network is an IP network comprising a plurality of network switches.

However it should be noted that Ishioka'422 in fact teaches sending test packets between endpoints where the network is an IP network comprising a plurality of network switches and compensating for the lack of synchronism between the sending and receiving ends' clocks when calculating the transport time of the test packets. Ishioka'422 uses a reference test packet to establish a reference transmission and a reception time to determine relative test packet transport time providing means for evaluating the test results while compensating for the lack of synchronism between the end points as detailed in Column 5, Lines 10-33.

However, the above mentioned claimed limitations are well known in the art as evidenced by Doerken'550. In particular, Doerken'550 discloses a method of synchronously transmitting packets between network end points ***(Each end unit like elements 26 and 28 use GPS 30 to synchronize clocks and the network of Figure 1 is able to send data and test packet as shown in paragraphs 47 and 48)*** where the network is an IP network ***(See Figure 1 and paragraphs 43 and 54 where each entity has an IP address)*** comprising a plurality of network switches ***(Figure 1, elements 12 and 22 are switches.***

Note that Ishioka'422 determines relative test packet transport time as opposed to absolute transport time in order to determine the best time slot that corresponds to the minimum relative delay as opposed to the minimum absolute delay because the receiving and sending ends are not synchronized. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Ishioka'422's method such that it determines absolute test packet transport time in order to determine the best time slot that corresponds to the minimum absolute delay by synchronizing the receiving and sending ends using Doerken'550 synchronization scheme).

In view of the above, having the method of Ishioka'422 and then given the well established teaching of Doerken'550, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ishioka'422 as taught by Doerken'550, since Doerken'550 clearly states in paragraph 58 that the modification to Ishioka'422's method results in end users having synchronized clocks and end users will be able to take very accurate packet delay measurements.

8. **Claims 4, 5, 7, and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishioka'422 in view of Klassen'137 as applied to claims 1 and 19 above, and further in view of Gail, Jr et al (US 7, 116, 639 B1).

Regarding **claim 4**, the combination of Ishioka'422 and Klassen'137 fail to disclose a method that comprises the step of evaluating dropped packet rates associated with the test packets.

However, the above mentioned claimed limitations are well known in the art as evidenced by Gail'639. In particular, Gail'639 discloses a method that comprises the step of evaluating dropped packet rates associated with the test packets **(Gail'639 shows evaluation of dropped test packet rates in Column 5 Lines 50-54, Column 13, Lines 30-35, and Column 16, Lines 45-60**

In view of the above, having the method based on the combination of Ishioka'422 and Klassen'137 and then given the well established teaching of Gail'639, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Ishioka'422 and Klassen'137 as taught by Gail'639, because the benefit to determine dropped packets rates for test packet is that such an evaluation plays key factor in determining network utilization as stated by Gail'639 in Column 5 Lines 50-54, Column 13, Lines 30-35, and Column 16, Lines 45-60. The combination of Klassen'137 and Ishioka'422 can be modified by Gail'639 as Gail'639 uses the same network as Klassen'137 as shown in Figure1 and both inventions are directed at improving network utilization for the benefit of two endpoints in the network.

Regarding **claim 5**, the combination of Ishioka'422 and Klassen'137 fail to disclose a method wherein a step comprises the step of transmitting the test packets at a data rate corresponding to an expected connection bandwidth. (It should be noted that Klassen'137 teaches transmitting test packets at various data rates sufficient to support a desired bandwidth corresponding to a desired service as indicated Column 7, Line 6. Examiner assumes "expected connection bandwidth" means predicting data rates at

different times for the same service which Klassen'137 implicitly teaches in Column 7, Lines 53-55 but fails to explicitly teach how the data rate is calculated at different times for the same service to determine expected connection bandwidth).

However, the above mentioned claimed limitations are well known in the art as evidenced by Gail'639. In particular, Gail'639 discloses a method wherein a step comprises the step of transmitting the test packets at a data rate corresponding to an expected connection bandwidth. **(In Column 13, Lines 53-67 and Column 14, Lines 1-20 Gail'639 shows how the data rate is calculated at different times for the same service to determine expected connection bandwidth.)** .

In view of the above, having the method based on the combination of Ishioka'422 and Klassen'137 and then given the well established teaching of Gail'639, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the based on the combination of Ishioka'422 and Klassen'137 as taught by Gail'639, because the benefit to transmit the test packets at a data rate corresponding to an expected connection bandwidth is to maintain optimal network utilization as stated by Gail'639 in Column15, Lines 40-45, Column 13, Lines 53-67 and Column 14, Lines 1-20. The combination of Klassen'137 and Ishioka’422 can be modified by Gail'639 as Gail'639 uses the same network as Klassen'137 as shown in Figure1 and both inventions are directed at improving network utilization for the benefit of two endpoints in the network and Gail'639 explicitly suggests modifying Klassen'137 invention in Column 13, Line 44.

Regarding **claim 7**, the combination of Ishioka'422 and Klassen'137 fail to disclose a method wherein a step comprises the step of a network endpoint performing an evaluation of dropped packet rates associated with the test packets. (Ishioka'422 discloses the step of a network endpoint performing an evaluation of latencies associated with the test packets transmitted over the plurality of different time slots as shown in Figure 6 and Column 7, Lines 45-65.)

However, the above mentioned claimed limitations are well known in the art as evidenced by Gail'639. In particular, Gail'639 discloses a method wherein a step comprises the step of a network endpoint **(i.e. work station 22 in Figure 2)** performing an evaluation of dropped packet rates associated with the test packets. **(Gail'639 shows evaluation of dropped test packet rates in Column 5 Lines 50-54, Column 13, Lines 30-35, and Column 16, Lines 45-60. Given that Ishioka'422 teaches determining test packet latencies during different time slots it will be natural to for one ordinarily skilled in art to ask what if expected transmitted test packets never reach their destination and Gail'639 method of determining dropped rate packets provides a scheme to address the scenario of "what if expected transmitted test packets never reach their destination").**

In view of the above, having the method based on the combination of Ishioka'422 and Klassen'137 and then given the well established teaching of Gail'639, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Ishioka'422 and Klassen'137 as taught by Gail'639, because the benefit to determine dropped packets rates for test

packet is that such an evaluation plays key factor in determining network utilization as stated by Gail'639 in Column 5 Lines 50-54, Column 13, Lines 30-35, and Column 16, Lines 45-60. The combination of Klassen'137 and Ishioka'422 can be modified by Gail'639 as Gail'639 uses the same network as Klassen'137 as shown in Figure1 and both inventions are directed at improving network utilization for the benefit of two endpoints in the network.

Regarding **claim 24**, the combination of Ishioka'422 and Klassen'137 fail to disclose an apparatus wherein the packet statistics comprise a dropped packet rate.

However, the above mentioned claimed limitations are well known in the art as evidenced by Gail'639. In particular, Gail'639 discloses an apparatus **(i.e. work station 22 in Figure 2)** wherein the packet statistics comprise a dropped packet rate. **(Gail'639 shows statistics of dropped test packet rates in Column 5 Lines 50-54, Column 13, Lines 30-35, and Column 16, Lines 45-60**

In view of the above, having the method based on the combination of Ishioka'422 and Klassen'137 and then given the well established teaching of Gail'639, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Ishioka'422 and Klassen'137 as taught by Gail'639, because the benefit to determine dropped packets rates for test packet is that such an evaluation plays key factor in determining network utilization as stated by Gail'639 in Column 5 Lines 50-54, Column 13, Lines 30-35, and Column 16, Lines 45-60. The combination of Klassen'137 and Ishioka'422 can be modified by Gail'639 as Gail'639 uses the same network as Klassen'137 as shown in

Figure1 and both inventions are directed at improving network utilization for the benefit of two endpoints in the network.

Response to Arguments

5. 9. Applicant's arguments with respect to all independent claims have been considered but are moot in view of the new ground(s) of rejection. Again, this Office Action is made final because it is still addressing the *amended* claims in the amendment filed on 10/09/2007.

In conclusion, Examiner would like to emphasize primary reference, Ishioka'422, teaches transmitting a plurality of test packets in a plurality of time slots and selects the best route after determining the route that has the most number of favorable low-contention time slots. Secondary references Klassen'137 and Gail'639 teach identical tests to that of the Applicant's invention based on queuing theory. Secondary reference, Doerken'550, teaches synchronizing receiver and transmitter clocks in an identical manner to that of the Applicant's teachings. Hence, it is the position of the Examiner that the combinations of the cited prior arts adequately address all of the claimed limitations.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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